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ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*

(54) Title: PROBE CORRECTION FOR GENE EXPRESSION LEVEL DETECTION

(57) Abstract: Individual probes on micro-arrays are re-scaled and corrected with a set of probe dependent coefficients derived from genomic-DNA hybridization signals. A dynamic range for gDNA binding is determined by measuring a concentration signal curve. Signals for each probe are measured during multiple hybridizations within a linear range. Concentration insensitive probes are then found for two sets of experiments. Probes are discarded based on a threshold compared to their standard deviation divided by their average in each set. The correction coefficients are used to calculate a corrected intensity for each probe. Probes having high uncertainty (0.5 in one embodiment) are discarded. A weighting factor for each probe is determined along with an uncertainty factor. Finally, a call for each gene is made, such as absent, marginal or present.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/01636

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C12Q 1/68; C12P 19/34; C07H 21/02, 21/04; G01N 33/48, 31/00; G06F 17/00, 15/00
US CL : 435/6, 91.1, 91.2; 536/23.1, 24.3; 702/19, 27; 706/45, 47; 712/200

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 435/6, 91.1, 91.2; 536/23.1, 24.3; 702/19, 27; 706/45, 47; 712/200

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,P	COLANTUONI et al. SNOMAD (Standardization and Normalization of MicroArray Data): web-accessible gene expression data analysis. Bioinformatics. April 2002, Vol. 18, No. 11, pages 1540-1541, especially page 1541.	1-28
X	YANG et al. A statistical method for flagging weak spots improves normalization and ratio estimates in microarrays. Physiological Genomics. August 2001, Vol. 7, pages 45-53, especially pages 46-47.	1-28
A	KERR et al. Analysis of Variance for Gene Expression Microarray Data. Journal of Computational Biology. 2000, Vol. 7, No. 6, pages 819-837, see the entire document.	1-28



Further documents are listed in the continuation of Box C.



See patent family annex.

<p>* Special categories of cited documents:</p>		
"A" document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed		

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INTERNATIONAL SEARCH REPORT

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Continuation of B. FIELDS SEARCHED Item 3:

STN Commercial Database (Biosis, Medline, Embase, Embal, SciSearch, BiotechDS, and CAPlus)

search terms: array, microarray, biochip, normalization, signal intensity, deviation, standard deviation, probe cell, linear, and linear range.